May 21, 1943

Copper Commando - vol. 1, no. 20

Victory Labor-Management Production Committees of Butte, Anaconda and Great Falls

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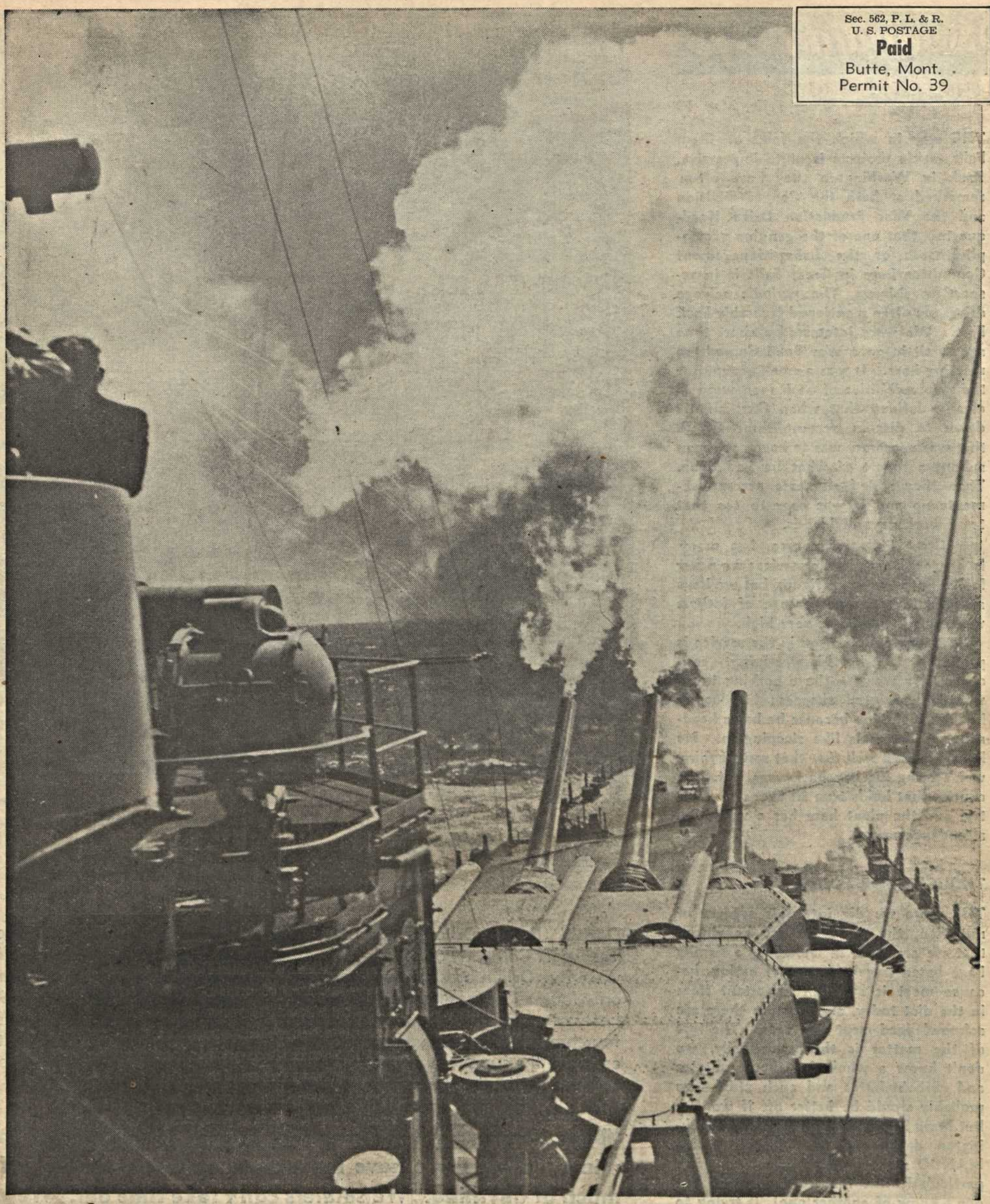

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Copper Commando

In This Issue:

Sounding Off

Great Falls, May 19

THE way in which the folks at Great Falls tackle projects is quite impressive. Back in Washington they have often remarked at both the Copper Division and the War Production Drive Headquarters that one of the genuine accomplishments of the Labor-Management Committee here in Great Falls is in respect to drives. The periodic salvage drives are often mentioned favorably back East. We were interested a short time ago to sit in on a War Bond Committee meeting here. It was a small group, but the responsibilities of each man were so clearly defined that when they all sat down to discuss accomplishments, all that was necessary was to have each man submit a report of what he had done. Then they added all these accomplishments up and it was easy to see that team work pays dividends.

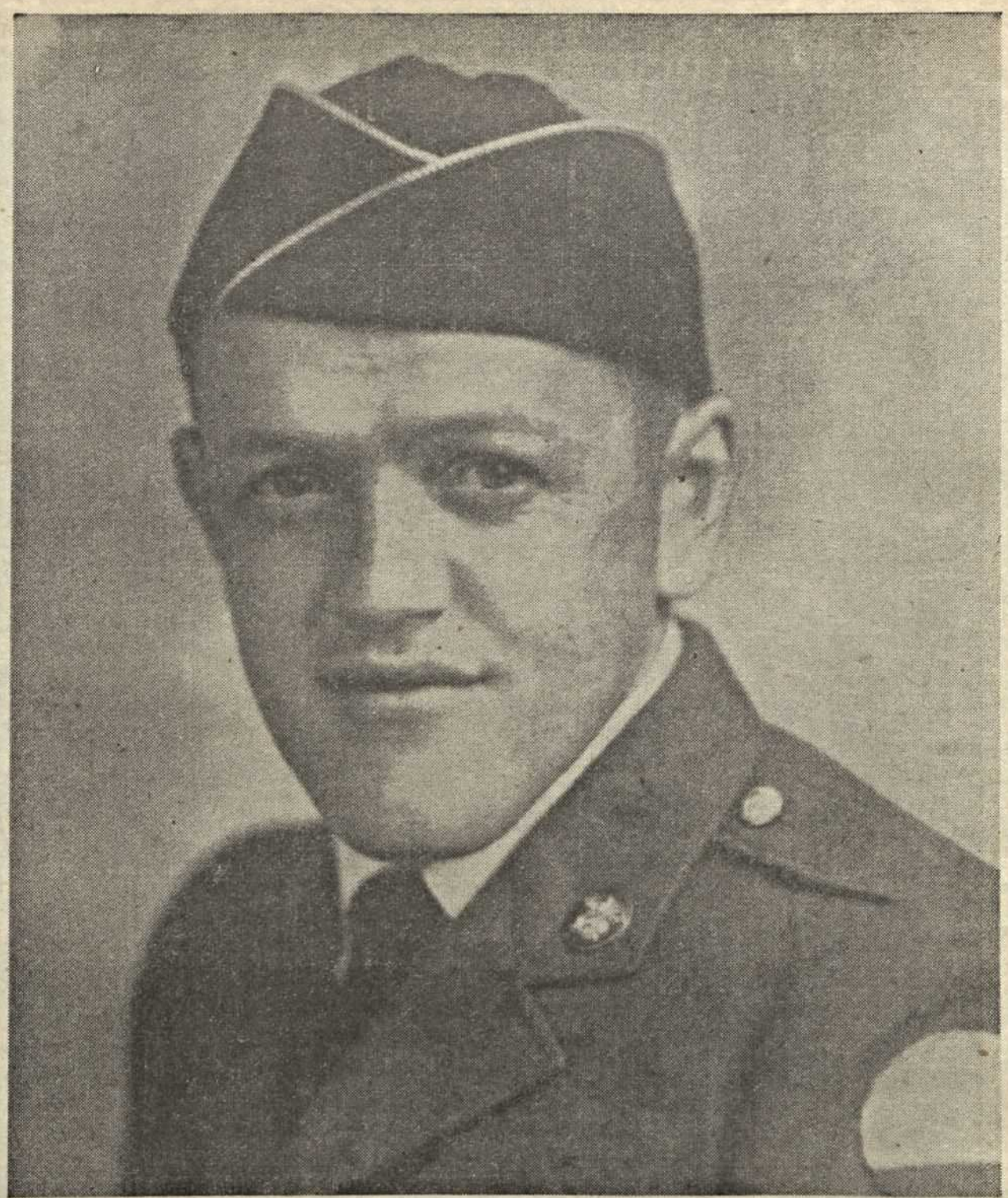
Great Falls, of course, has many fathers with sons in the service; we never looked into the exact figure, but we have an idea that the percentage of fathers with sons in service is very high.

A father with a son in the service is pretty apt to take this war mighty seriously. He wants to have nothing to do with unwarranted absence; he doesn't knock off the job because he has a headache or just feels like sleeping in. He knows darned well that that sort of thing won't bring his boy back very fast. Of course, that holds true all over the country, and the plant here has a very high attendance record.

THOUGHT FOR FOOD

THE more we dig into this subject of nutrition, the more we are convinced that we are right in launching a Family Page based largely on proper eating, because meat is such an important item in the diet today, and because there are acknowledged meat shortages. The fact of the matter is that, personally, we don't know a whole lot about proteins and carbohydrates and such stuff—we probably would be better off if we did. But Marg Sammons, who is now in Washington developing for COPPER COMMANDO a nutrition program (we don't particularly like the word nutrition but don't know of another one), is trying to select the wheat from the chaff and come back here to Montana with a department which will be helpful. She has spent a great deal of time talking with the wives of the various employees at Anaconda, Butte and here, and if we don't do anything else, we will make an effort to consider the local problems of rationing and see if, with all of us working together, we can't lick them.

—BOB NEWCOMB



"Boys, do your part . . ."

Donald (Lefty) Orlich is now a Technician Fifth Grade with a Motor Transport Company of the Armed Forces in Africa. Before the war there were five Orlich brothers–all working in the Butte Mines. Now there are only four. The family is broken up for the first time since they were kids. Lefty misses his brothers for he is out there in Africa all alone. The other four brothers have stayed on in Butte in the Mines in order that Lefty can have the supplies with which to fight in Africa. But Lefty wanted them to realize how necessary those supplies are, so he wrote:

"Boys, do your part and keep that copper rolling out of the mines. If we don't have bullets and supplies, we can't do much of anything. We soldiers can't take time out. We've got to be on the job night and day. We're counting on you to give us the supplies so we can get this scrap over with and get back home."

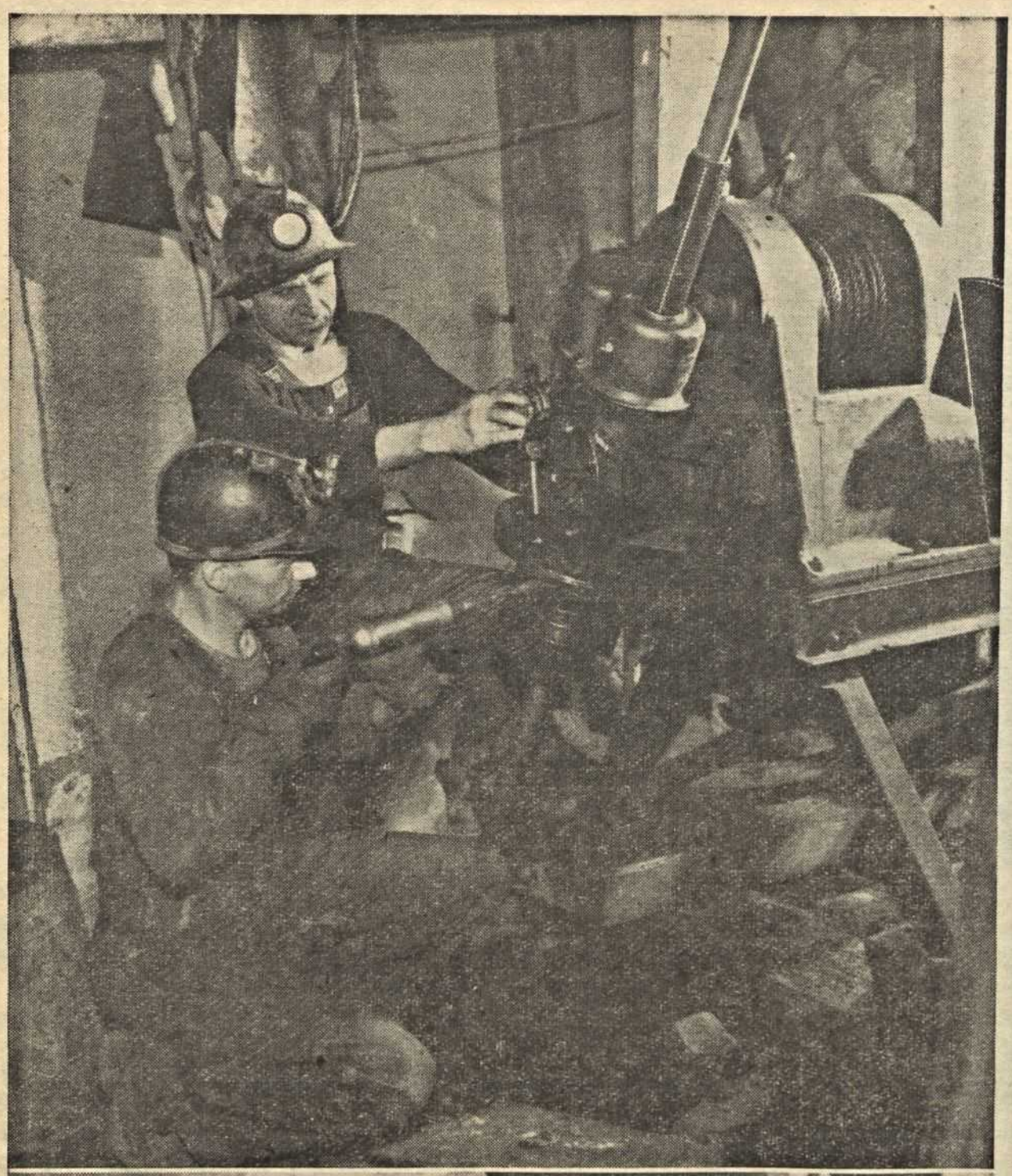
Lefty knows that copper goes into practically every single material of war. He knows that copper is one of the most needed things for the supplies for which he is making a plea. He knows that if the production lines are slowing down, it's because of the lack of raw material. He knows first hand that the supplies are up to the boys on the Home Front.

A picture of the boys going off shift at the Anaconda Smelter.

COPPER COMMANDO is the official newspaper of the Victory Labor-Management Production Committees of the Anaconda Copper Mining Company at Butte, Anaconda and Great Falls, Montana. It is issued every two weeks. . . . COPPER COMMANDO is headed by a joint committee from Labor and Management; its policies are shaped by both sides and are dictated by neither. . . . COPPER COMMANDO was established at the recommendation of the War Department with the concurrence of the War Production Board. Its editor is Bob Newcomb; its associate editor is Marg Sammons; its safety editor is John L. Boardman; its chief photographer is Bob Nesmith; its staff photographer is Les Bishop. . . . . Its Editorial Board consists of: Denis McCarthy, CIO; John F. Bird, AFL; Ed Renouard, ACM, from Butte; Dan Byrne, CIO; Joe Marick, AFL; C. A. Lemmon, ACM, from Anaconda; Jack Clark, CIO; Herb Donaldson, AFL; and E. S. Bardwell, ACM, from Great Falls. . . . COPPER COMMANDO is mailed to the home of every employe of ACM in the three locations—if you are not receiving your copy advise COPPER COMMANDO at 112 Hamilton Street, Butte, or, better still, drop in and tell us. This is Volume 1, No. 20.

In This Issue

ALLIED PRINTING TRADES UNION LABEL COUNCIL BUTTE, MONT.

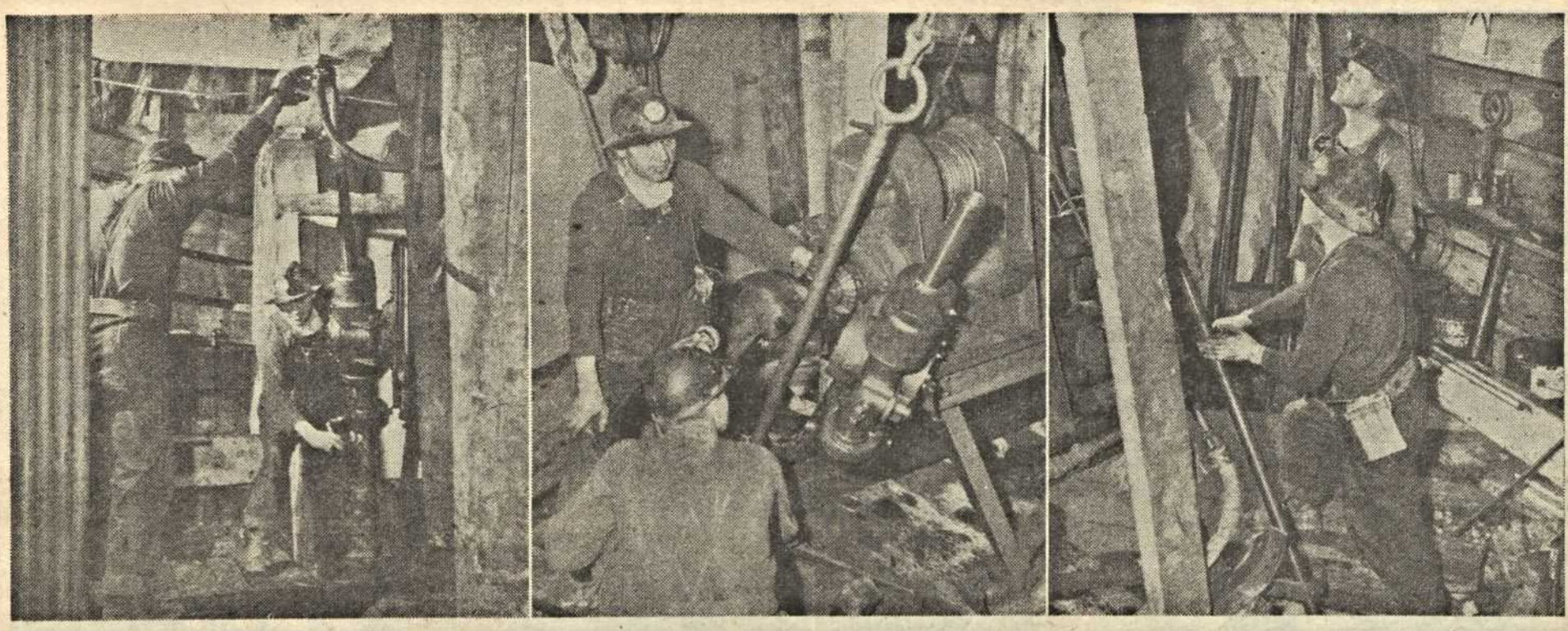


Diamond Drilling

To someone not familiar with mining, the term "diamond drilling" might bring visions of great wealth, but on the 3400 ft. level of the High Ore Mine, where these pictures were taken, it has a very different meaning.

DIAMOND drilling means simply that a diamond bit has been used to cut through the rock. A diamond bit is a bit set with an inferior grade of diamond called bortz, which is one of the hardest known substances. It takes a plenty hard substance to cut through the granite around Butte and not wear down. The diamonds are cast in the face of the bit so that they keep an outside clearance, as well as a clearance on the inside, and the main cutting medium is on the face of the bit. The bit is screwed on the end of the core barrel. That's an NX bit 2 15-16 inches in diameter in the lower left picture on page 6. From the picture you can get an idea as to how the diamonds are cast in it. The core barrel is the rod which first penetrates the rock. Core barrels vary in length from one to ten feet. The rock which is cut out is contained in this core barrel until it is pulled out and emptied. The bits must be changed from time to time due to the abrasive quality of the rock, which wears away the metal and loosens the diamonds. When the hole has been cut in the granite the length of the core barrel, the core is removed. When the core barrel is again put in the hole and drilling resumed, rods are added and continue to be added as the depth of the hole increases. These rods are usually ten feet long. While drilling, there is a continuous flow of water passing through the rods and the bit which keeps the bottom of the hole free of mud. This water circulates through the rods and bits and up the hole and washes out the sludge or mud. When drilling is stopped, the water is shut off.

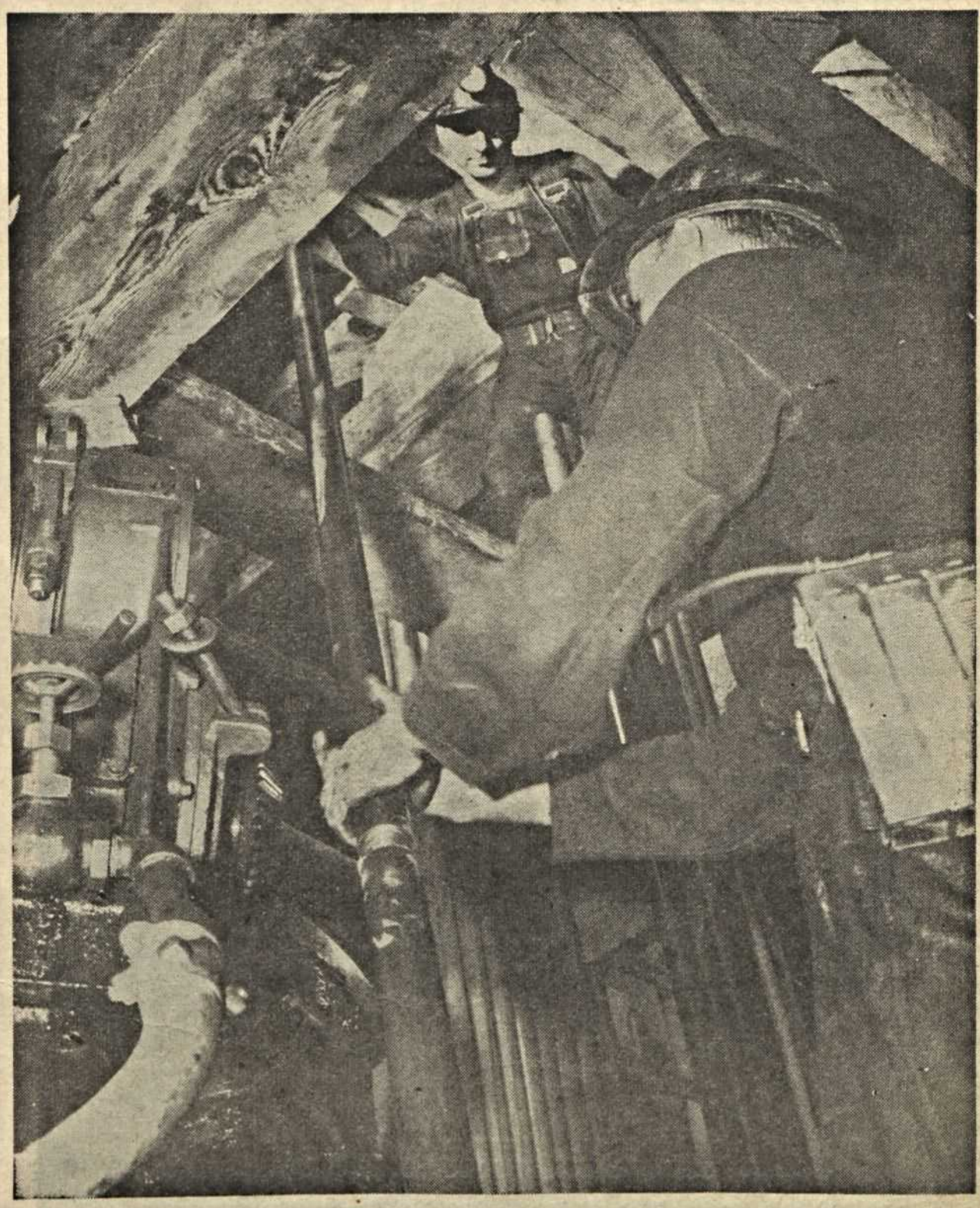
When we got these shots at the station on the 3400 ft. level of the High Ore Mine, they were drilling for the purpose of carrying drainage from the 3400 ft. level to the 3800 ft. drain tunnel of the

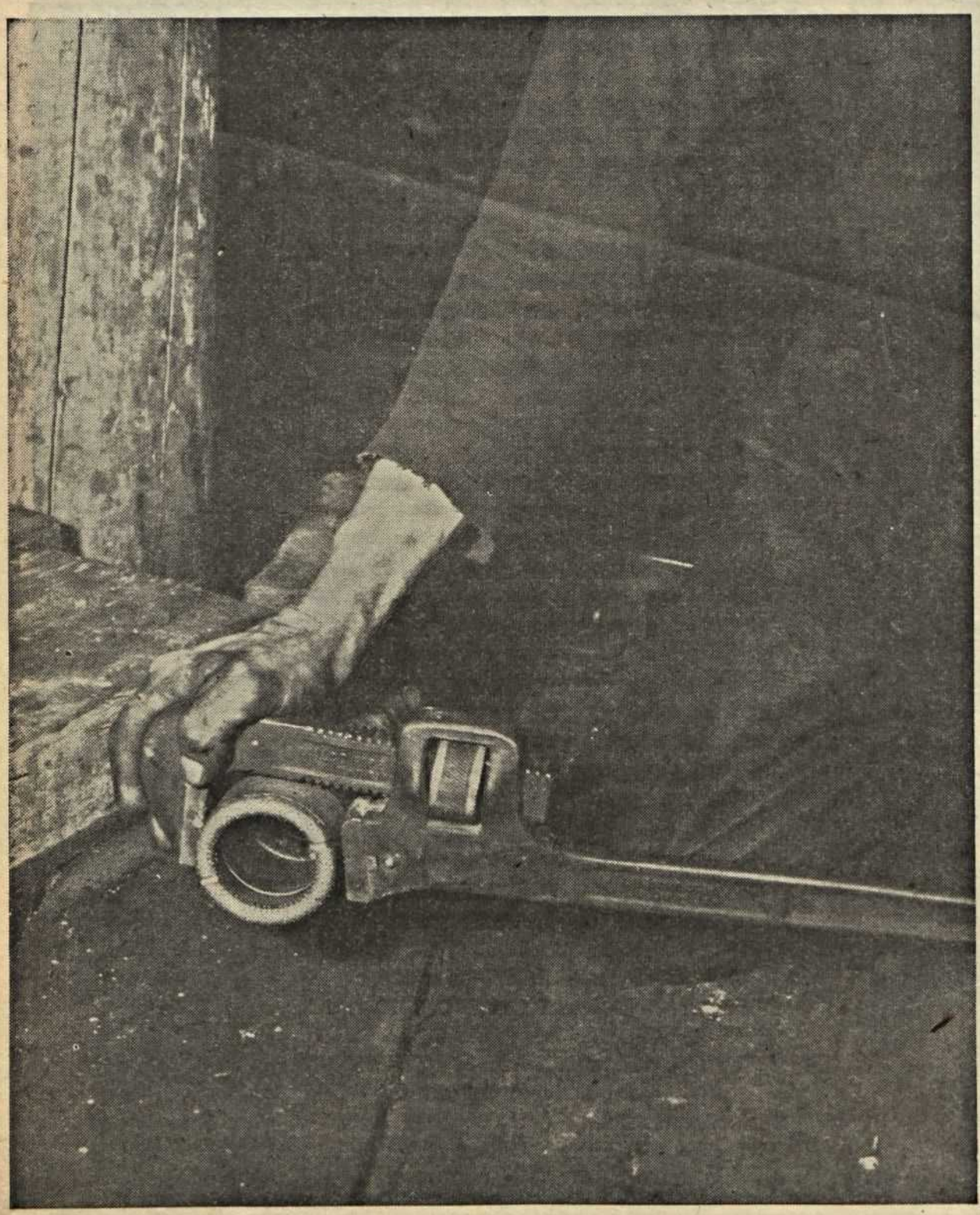


The day we got these shots of Drill Runner Jim Kalcso, and his helper, Jack Sultzer, operating the diamond drill on the 3400 ft. level of the High Ore Mine, they were drilling for the purpose of carrying drainage from the 3400 ft level to the 3800 ft. drain tunnel of the High Ore. That's to keep the levels as dry as possible; keep the water out of the shaft; and to get a concentration of water to the point where the heaviest pumps are located, so as to pump the water out of the mine. But there are other reasons for diamond drilling in the Butte district. One reason is for development of the ore bodies and to determine the value of ore reserves, and another is to prospect faults and determine their width and strike.

High Ore. The total depth drilled was 438 feet. Then they struck an opening which would carry the water on to the 3800 ft. drain tunnel. The reason for draining the ground is to keep the levels as dry as possible; keep the water out of the water boxes in the shaft; and to get a concentration of water to the point where the heaviest pumps are located, so as to pump the water out of the mine. The elevation and course of the proposed hole is carefully surveyed by the Engineering Department to insure proper direction. The primary purpose of diamond drilling in the Butte district is for development of the ore bodies and to determine the value of ore reserves, also to prospect faults and determine their width and strike. In development work the cores recovered are saved and brought to surface in specially made core boxes, where they are mapped by the Geological Department. Any sections of core containing minerals are sent to the High Ore Assay Office and assayed for various minerals.

In the upper shot, opposite page, Drill Runner Jim Kalcso and his helper, Jack Sultzer, are greasing the machine preparatory to drilling. The rods have already been lowered in the hole. Jim and Jack are watching the machine which is turning in the actual operation of drilling in the picture below. If you look closely, you can see the water which washes the sludge away coming up through the collar of the hole. They have drilled down fourteen inches and have run the feed screw back all set to drill again in the upper left shot on this page. In the middle picture, they have completed an eight foot section of drilling and are pulling the rods to empty the core barrel. The upper right shows Jack and Jim still pulling rods. The deeper they go, of course, the more rods there are to be pulled. Jack and Jim are unscrewing rods in the lower





right shot page 5. Each ten feet of rod is unscrewed as it is pulled out. They had gotten down to quite a depth when this picture was taken as you can see by the stacked rods. The upper left picture shows they have finished pulling up the rods for that's the core being inspected by Don McAllister, drill boss. Tom Satterthwaite, assistant drill boss, and Jim Kalcso, the drill runner, were also interested in seeing the core as it was removed from the core barrel. Don and Tom are inspecting the diamond core bit which had just been withdrawn from the hole in the upper right shot. It was okay for another drilling so in the lower left shot Jim is replacing the diamond bit on the core barrel to again go into the hole and resume drilling.

Diamond drills are also used for leaching filled areas. That's so the water will run through the worked out or filled areas and in that way copper can be reclaimed through the copper water which drains to the Precipitating Plant.

In prospect or development drilling the rods are pulled much more often than in other types of drilling.

Various depths are drilled in the Butte area ranging from 25 to 1000 feet and various sizes of drills are used—from 1⅞ inches in diameter to 4 inches, depending on the purpose for which the hole is to be used. Heavier machinery is used for larger holes and deeper drilling.

So you can see that diamond drilling is a lot different than the term implies, but the boys say there is a fascination about it—always wondering what the next core will show.

COPPER COMMANDO

The Official Newspaper of the Victory Labor-Management Production Committees at Butte, Anaconda and Great Falls

ME AND MY JOB

THERE is a popular belief that, unless you are in uniform fighting for the cause of the United Nations, you aren't really and truly serving your country. There are thousands of cases on record of men, both young and middle age, who have left highly essential production jobs to go to war.

Nobody could challenge the patriotism that motivates these men to move from one job to a more dangerous one. But, let's stop and analyze this situation for a minute and see if we can make some sense out of it: Wars need more than actual fighting men, because fighting men must have weapons, sailors must have ships, and aviators must have planes. If every working man in this country were in uniform, we would have no supplies and we would lose the war in no time.

Back of any army stands the production army, and there is no industry in American wartime production today as important as the copper industry. The physically able copper miner is granted first deferment from military service, all other things being equal, to work in the mines and smelters and refineries. The man in the copper industry today is the most important man on the whole production front. The copper miner who mines ore every day is doing a job every bit as important as the soldier on the fighting front. His job may be even more important, since the soldier cannot fight unless the miner mines the ore.

We must all learn to think in terms of what we contribute to this war. We must not think, simply because we go underground each day to perform the same type of operations we have performed for years, that we are not making a contribution. Nothing is further from the truth.

Mr. Miner and Mr. Smelterman and Mr. Refiner, you are important men. Let's not kid ourselves about it. There isn't a department in Washington today that doesn't have its eye centered on the territory out here because it is the most vital production spot in the whole country and, therefore, probably in the whole world. It's a big responsibility to be in this industry today, and none of us should get in the frame of mind that copper can wait. Copper can't wait.

People & Places

FOR the last couple of weeks we've been going around Butte, East Helena, Great Falls and Anaconda snooping, scooping and snapping. We met a lot of interesting people and hope to tell you about all of them in time. Old-timer John Currie in the Electrical Shop in Butte was an electrician in a coal mine for years, and has some good yarns to tell of his experiences. He's been in the Electrical Shop for the last sixteen years and has earned the affection of all the fellows around the Shop, for more than one of the fellows gave John a pat on the back.

Leonard Davies, also at the Electrical Shop, makes and repairs the radio signal sets for the mines. Leonard was a radio operator on a submarine for four years in the last war. He says: "I've been dabbling around in radio and wireless work since I was twelve years old." For the last twenty years Leonard has been in the Electrical Shop and for the last two and a half years he has had charge of the radio signal work. He admitted to us that his own radio at home was on the bum. We'd like to make a guess at what his wife thinks about the home radio being on the blink and him fixing dozens every day at the Shop.

Another old-timer we met was John Sewell at the East Helena Slag Plant. John has worked for the last fifty-one years in the state of Montana with an engineer's license. He claims to be seventy years old, although you'd never believe it, for he's the youngest looking old-timer you ever saw. He worked in the large Smelter Power House in Anaconda but came over to East Helena for the first shift at the Power House and has stayed right on. The boys say he really knows engines and can do just about any kind of engine work there is to be done.

We went home one evening with Louis Jackson, foreman at the Paint Shop at Great Falls. Louis has one of the most attractive and comfortable homes you can imagine. After we had been admiring it all evening, he broke down and told us the story. An old one-room office building was going to be torn down, but Louis was quick to see the possibilities it offered. Instead of it being torn down, it was moved over to his lot. Louis and his friends from the Carpenter and Paint Shop did the rest. When we heard Louis' story, we were all for knowing more of the carpenters and painters. Maybe we too can find out how to perform miracles.

An interesting old-timer in Anaconda is Michael Pramenko in the Power House. Mike has been in the Power House for the last thirty-four years, and can tell you about all the changes in personnel there during his time. He says he doesn't like to fool much around the streets. He'd rather get home for he can always busy himself around his own home. That's probably the reason he's lived in the same home for forty-two years. He bought it the year before he was married and takes a lot of pride in it and rightfully, too.

IN THE OFFICE

SINCE we haven't been in the office a lot recently, we were mighty glad that we were in when Father English dropped in for a chat. We feel honored to have his suggestions for COPPER COMMANDO.

The other day Poko Ramsey dropped in to chat about the display at the Tramway which has been moved from the Belmont. Poko was the man who made the arrangements in Great Falls for the display. It will be moved to other mines later.

Chester Regnier who has just started to work at the Hawkesworth Bit Shop came in to ask to be put on the mailing list of COPPER COMMANDO. We asked him a couple of questions and learned that he had just come to Butte straight from Pearl Harbor. No, he wasn't in the Army, but he saw enough while there so that he wants to work in Butte and help get the copper to the boys who are in the Army.

Clarence E. Rowe of the Tramway called in to say that the name slip for Angela Vittone for the mailing of COPPER COMMANDO was attached to his copy and he didn't want Angela to be without her copy. Thank you, Clarence.

IN THE MAIL

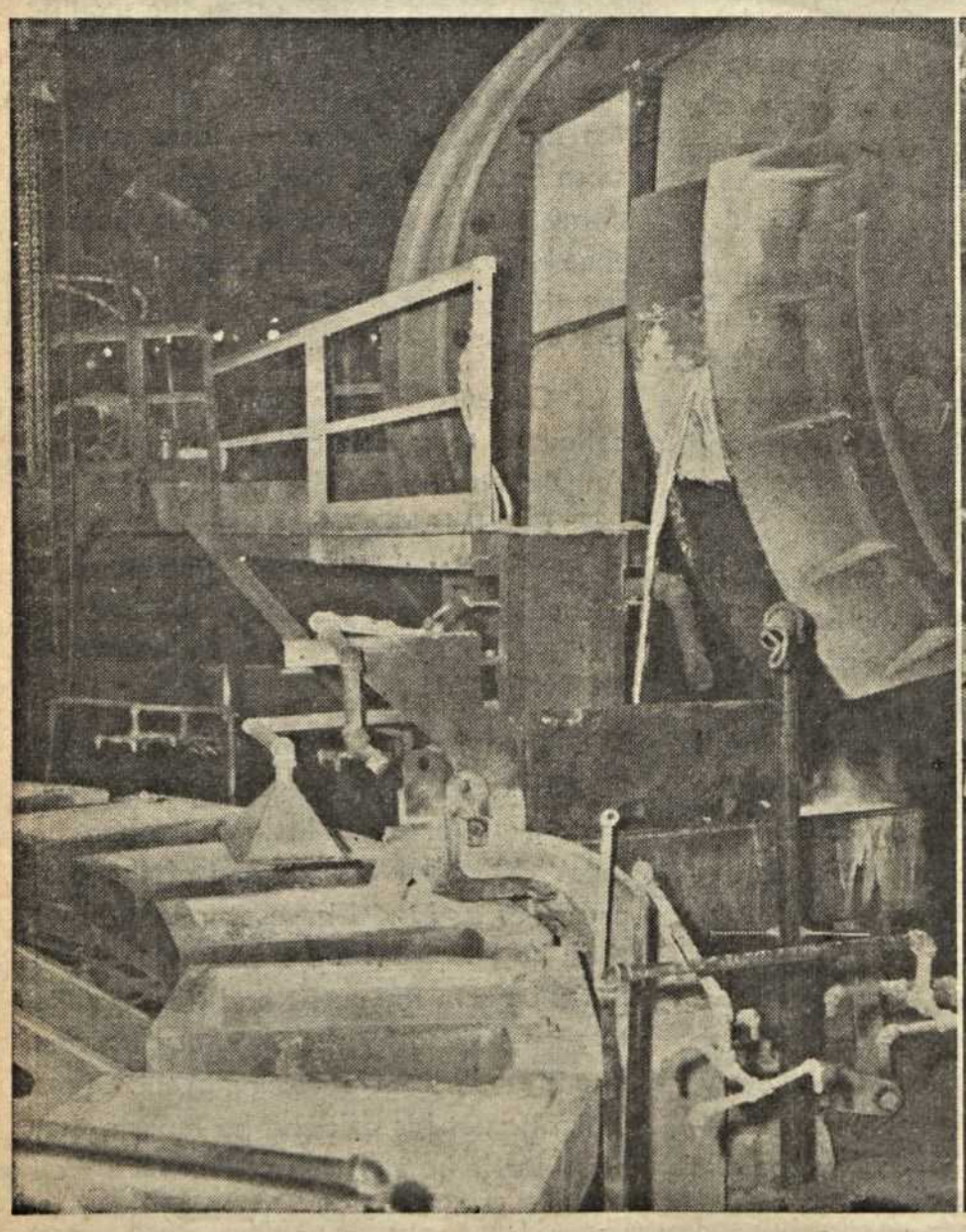
WE liked hearing from Corporal James C. Clark, then at Geiger Field, Washington. We get a little red when he says "COMMANDO" is one of the best papers of its kind I have ever seen," and then he adds, "There are several of the Butte boys in my outfit and they all like to read it, and by the way, our officers like it too." Jim was raising in the Emma when he got his call and he reports that other Butte boys there with him are Fred Sively, John Shea and A. Arthur.

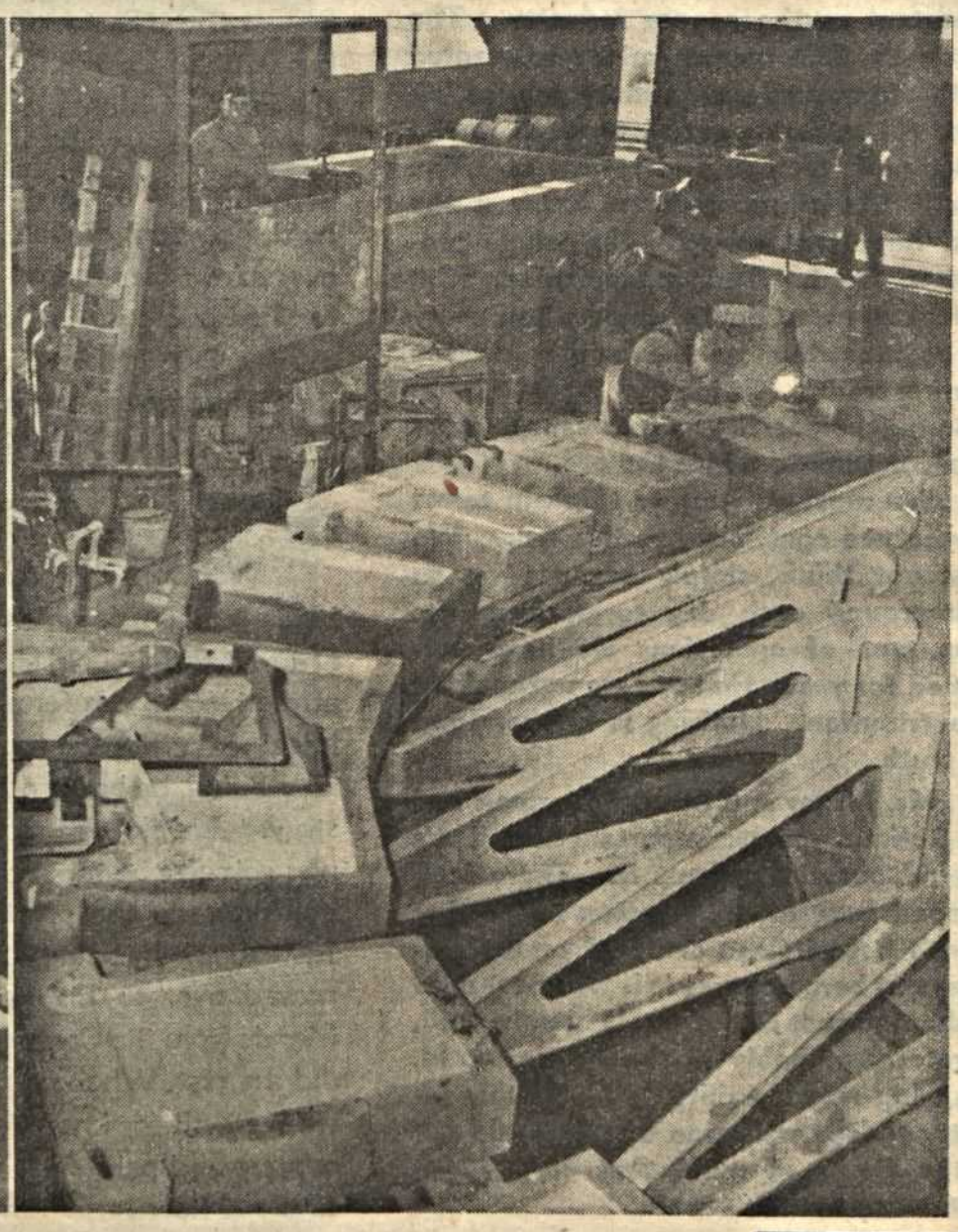
ALL ABOARD!

We brought the ore from the Butte mines into Anaconda on the ore trains, weighed, dumped, crushed and sampled it. We took it through concentrating, calcining, smelting and converting. Now we have the metal free at last for the first time since nature placed it in the ores. It goes to the refining furnaces in this issue and is cast into the familiar anodes ready for shipment to Great Falls and on to the Front.

THE blister copper which we left in the last issue ready to be charged to the refining furnace at Anaconda is moved in the ladles by the overhead cranes from the converters to the refining furnaces. If the copper were not furnace refined, it would be blistered and rough, so it is charged to the refining furnace in order that a smooth anode will be turned out for shipment to Great Falls.

These furnaces are of the rotary type and are fired by natural gas. Each furnace holds about one hundred seventy tons of molten metal. The picture in the upper left shows the charge being made with the blister copper from the converters. After the copper has been poured in, there is a small amount of slag on the copper as it comes from the converter. This slag is skimmed off into a ladle and returned to the converters. When the slag is all skimmed off, the copper is ready for furnace refining. This is done by blowing air through the copper. The oxidizing process eliminates the impurities, but it also over-oxidizes the copper. Then the problem is to reduce the over-oxidation. This is accomplished by "poling." The upper left shot next page shows the furnace with the "poling" in progress. Large green poles are inserted and held down into the bath of copper. Violent agitation takes places which keeps the poles in constant contact with fresh copper. This reduces the copper oxide in the bath to metallic copper. The refining of blister copper is based upon the fact that oxygen has a stronger affinity for the impurities in the charge than it has for copper. The oxygen in the air which is blown into the molten copper quickly unites with the impurities and carries them away either as slag or gas. The net result of furnace refining is, therefore, elimination of a major portion

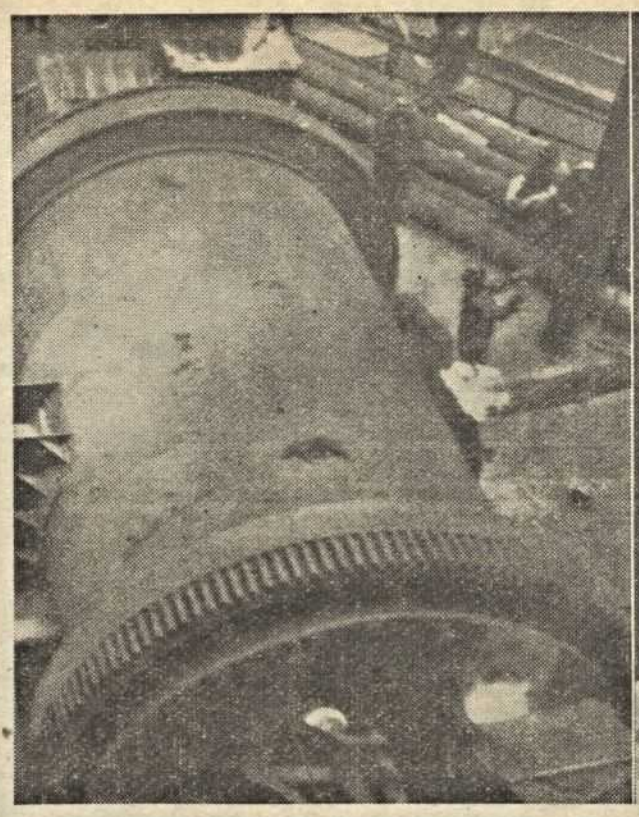




of harmful impurities which produces a solid copper anode for casting.

When this operation is finished, the copper is tapped from the furnace and cast into the familiar anode shapes weighing about four hundred twenty pounds each. These anodes are loaded into railroad cars and shipped to Great Falls for the removal of gold and silver and the final refining of copper.

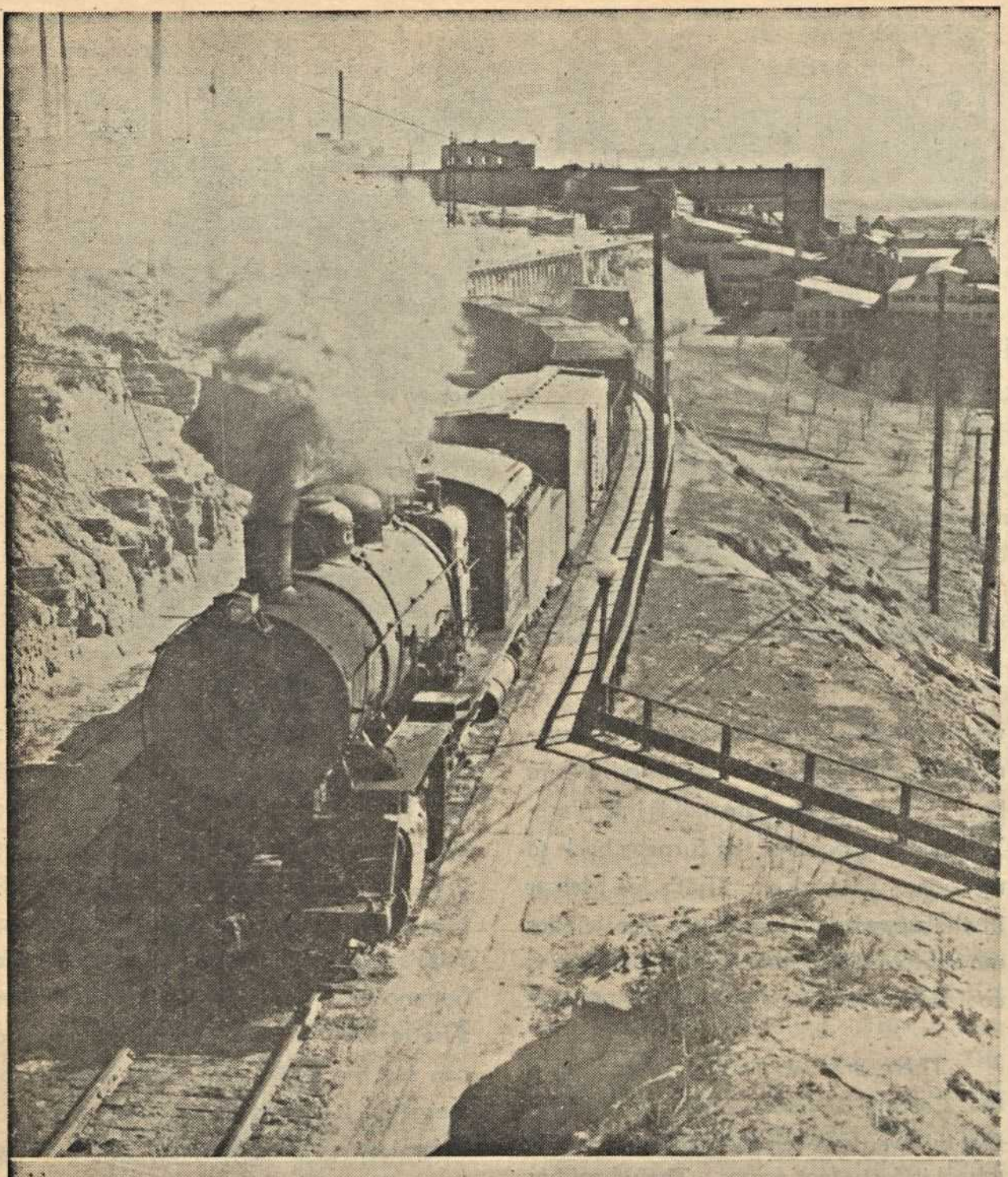
Now let's take a look at the copper as it is tapped from the furnace and poured into the anode molds. In the lower left picture opposite page, the pouring or tap hole has been opened and you can see the stream of copper filling the anode mold. Notice the metallic or cold look to this pure copper as compared with the splash of hot burning molten mass from the converters. In the lower right shot, Gust Peterson is spraying the molds before they are moved on to be filled. That's to keep the copper from sticking to the molds. The molds move on a rotating platform, which, as we told you in a previous issue, operates like a merry-go-round, except that it doesn't go so fast, and it stops every few feet so that another mold can be filled. Ted Sawyer, operator in the cab, watches the molds as they are filled. He controls both the revolving wheels of the anode molds and the copper furnace. He tips the copper furnace sufficiently to pour at all times without tipping it too much at any time. It's ticklish

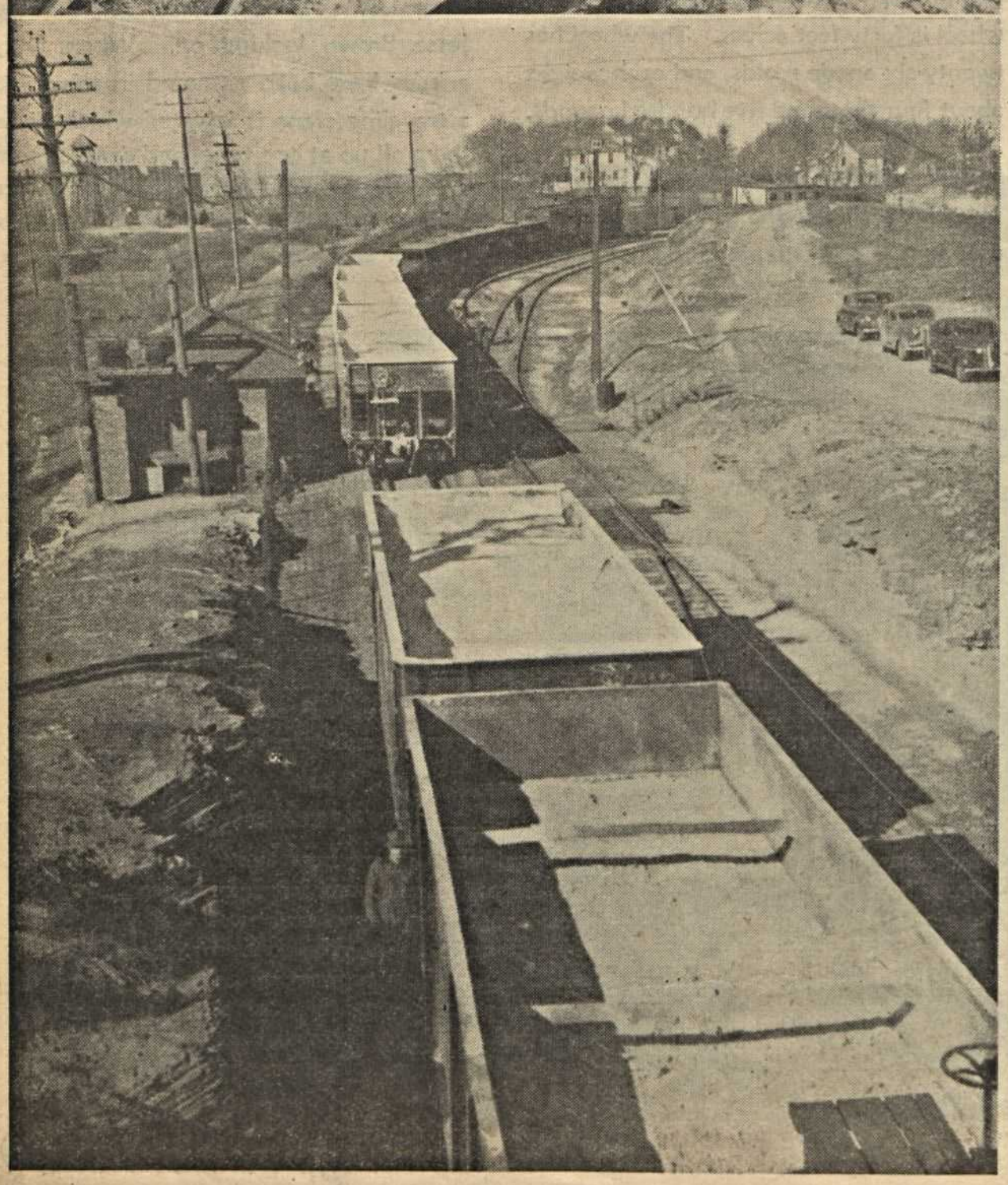


work, for this pure copper is vital war material and it must not be wasted. While he is moving the separate molds into place, Ted tips the spoon of the furnace back so no copper will be lost. That's Joe Messer in the upper right shot. As the anodes move around the turntable, the copper is cooled with water as seen in the picture.

There are two refining furnaces in the Casting Division—each is thirteen feet by twenty-seven feet, and the casting wheel is forty feet across. The wheel has twenty-six anode molds, and each weighs about four thousand five hundred pounds.

Just before the anode to be lifted from its mold by the crane reaches the spot for the crane to pick it up, it is tilted slightly out of the mold automatically so that the crane grabbers can dip down and grab hold of it. In the lower left picture you can see the anodes being raised from the molds, just before moving into position to be swung into the "bosh" tank. That's a tank filled with water to cool the hot anodes. The lower right picture gives a better view of the "bosh" tank and you can see the anode just ready to be submerged. It makes a real splash when it is landed. That's Howard Barlow and Jesse Brown looking on. When forty anodes have been gathered in the tank, a traveling crane is lowered which picks them all up at one time, and carries them onto the casting floor. Here they are trimmed and then loaded into regular box cars for shipment to Great Falls.





It's Team Work

EVERY morning the engines of the Great Northern turn into the Refinery at Great Falls to deliver their cargoes of raw material for conversion to war uses. Every night the engines of the Great Northern haul the completed product away from the Refinery and speed it on its way for Uncle Sam.

The cooperation that exists between the Great Falls Reduction Works and the Great Northern is a fine example of team work. The railway's local staff is practically like members of the Company, for their operations dovetail so efficiently with those of the Company's Traffic Departments.

There are three Great Northern locomotives engaged in the operations at Great Falls—two small ones and one large. These leave Great Falls with trains of material each morning, take care of necessary work at this plant during the day, and return to Great Falls with empties and outgoing material in the afternoon.

One engine serves the High Line Service Bins. Another serves the Copper Refinery and Zinc Plants, while the third serves the Rod and Wire Mill and Low Line Storage Ponds.

The materials coming into the plant consist chiefly of copper anodes from the Smelter at Anaconda and concentrates. The anodes are delivered to the Electrolytic Copper Refinery, while the zinc concentrates are sent direct to roaster bins or to storage ponds. The Refinery also receives roasted concentrates that go direct to the Zinc Plant.

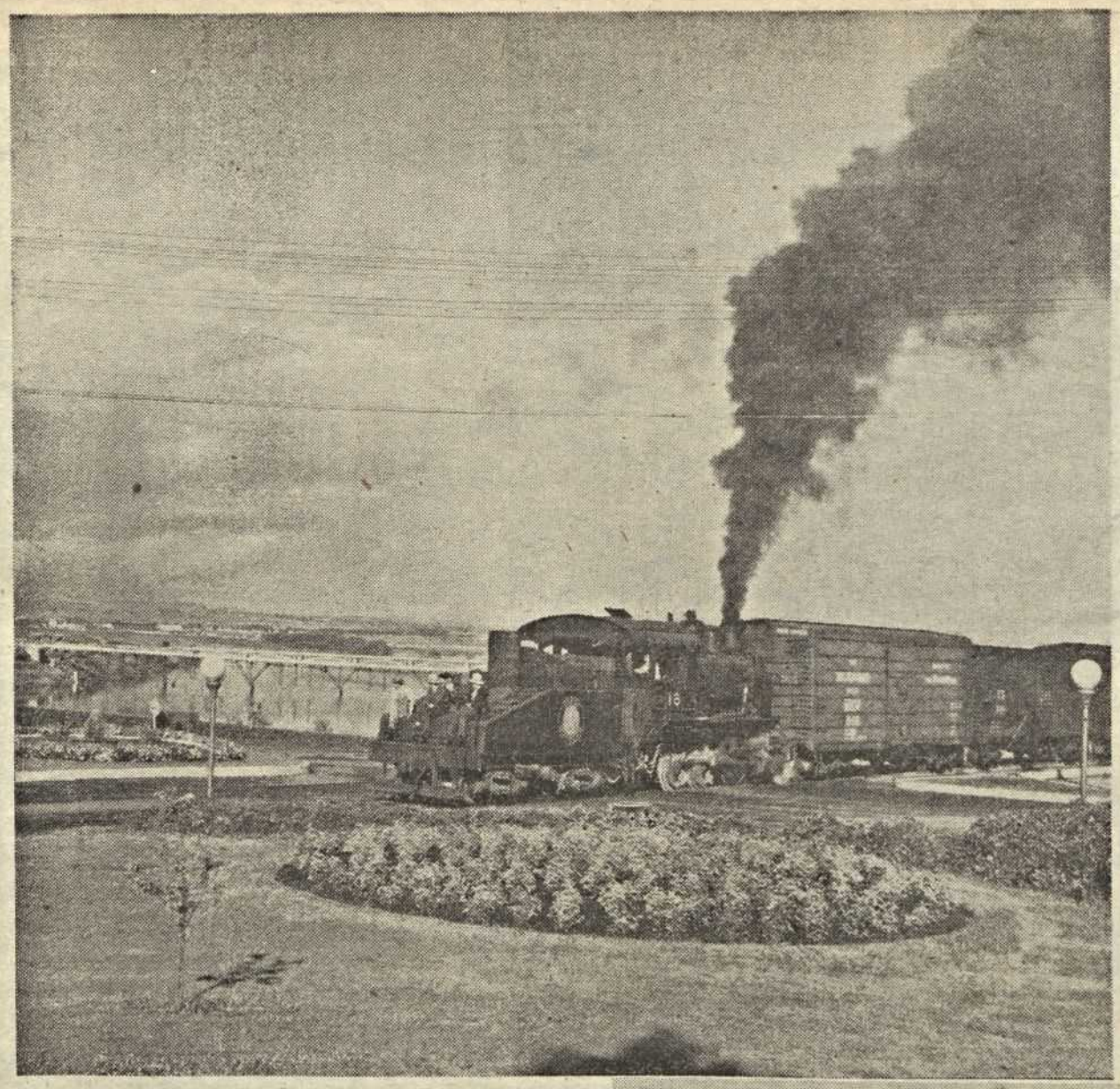
The Wire and Cable Plant gets its material from the Copper Refineries loaded on flat cars. After the bars are rolled, the rods are loaded into box cars for shipment.

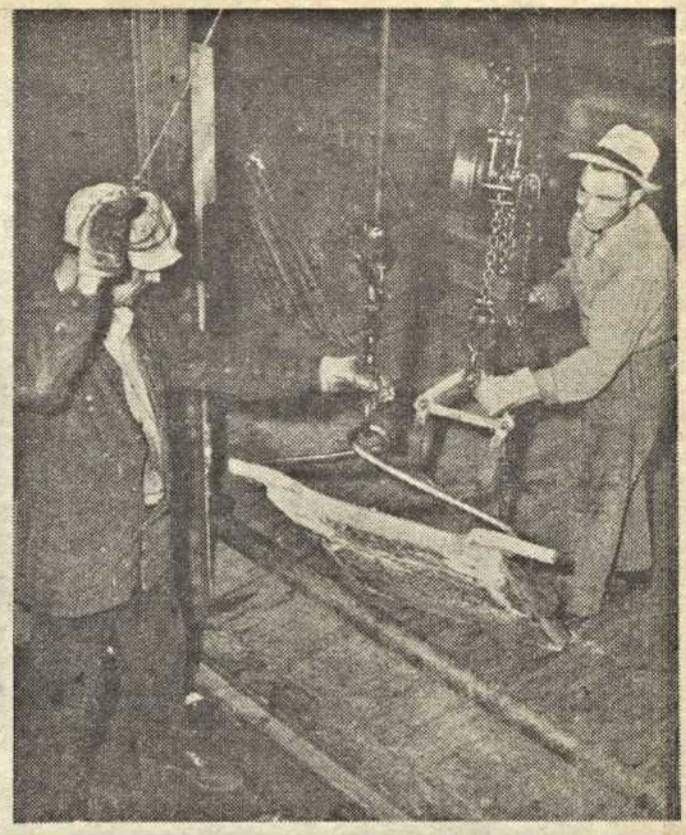
The Great Northern operations at the plant are not simple ones. They cover considerable track mileage since there are four different levels on the plant—the Low Line Tracks, the High Line Tracks, Sky Line Tracks, and Stack Line or Wire and Cable Company's Plant.

The local switching of materials to and from departments is done mostly by the Refinery's own Electric Tramming System, but the Great Northern is called on frequently for some local plant switching between different points on the plant served by Great Northern tracks.

All records and weighing of materials are maintained at the High Line Track Scales. Offices are maintained here by both the Great Northern and Milwaukee agents for checking and record purposes.

During 1942, the Great Northern handled 19,790 cars–this includes materials coming into the plant, moving from

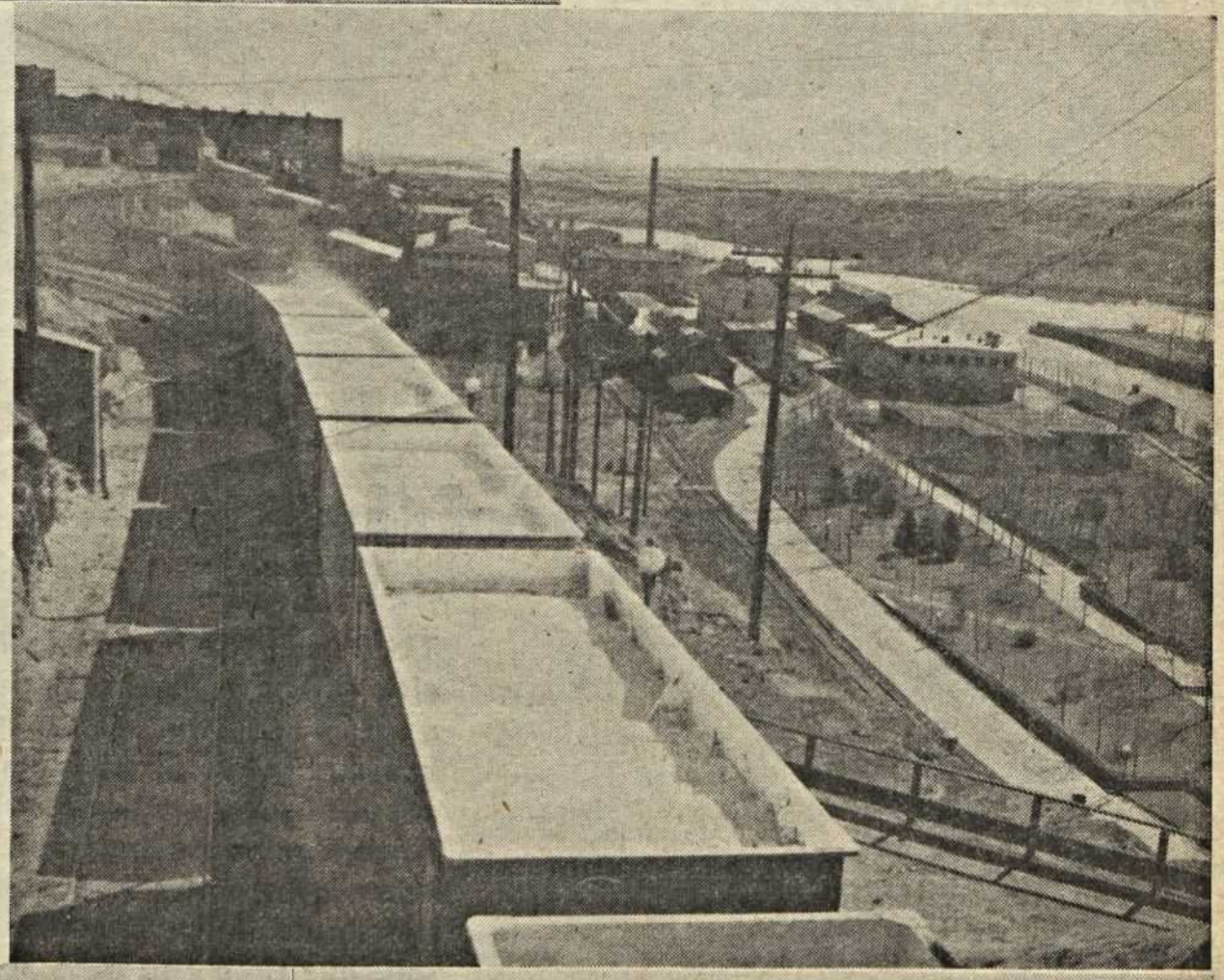


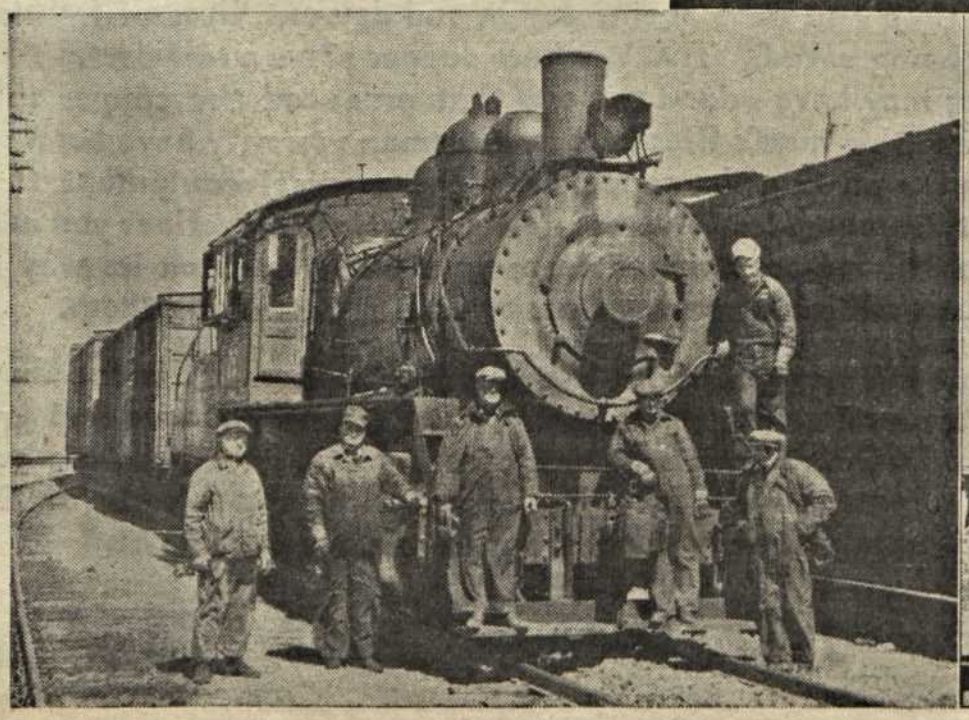


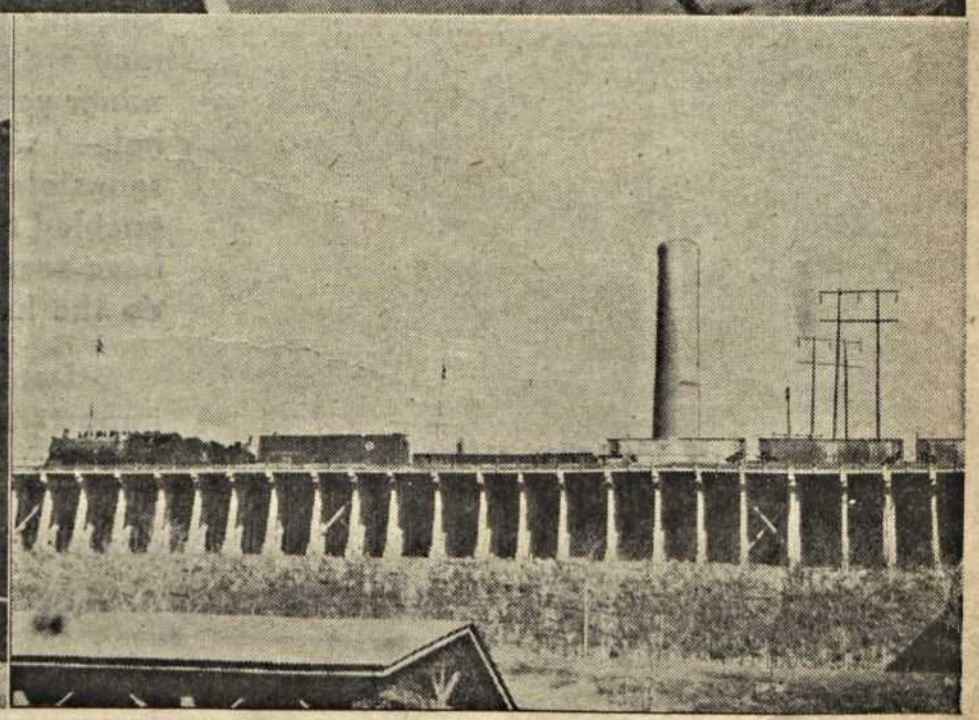
Here you see Mike Cupurdia and Gene Marianetti unloading anodes outside the Copper Refinery at Great Falls. On page nine of this issue in the story "All Aboard!" we told you they were shipped from Anaconda in box cars. Now you can see for yourself that they have arrived.

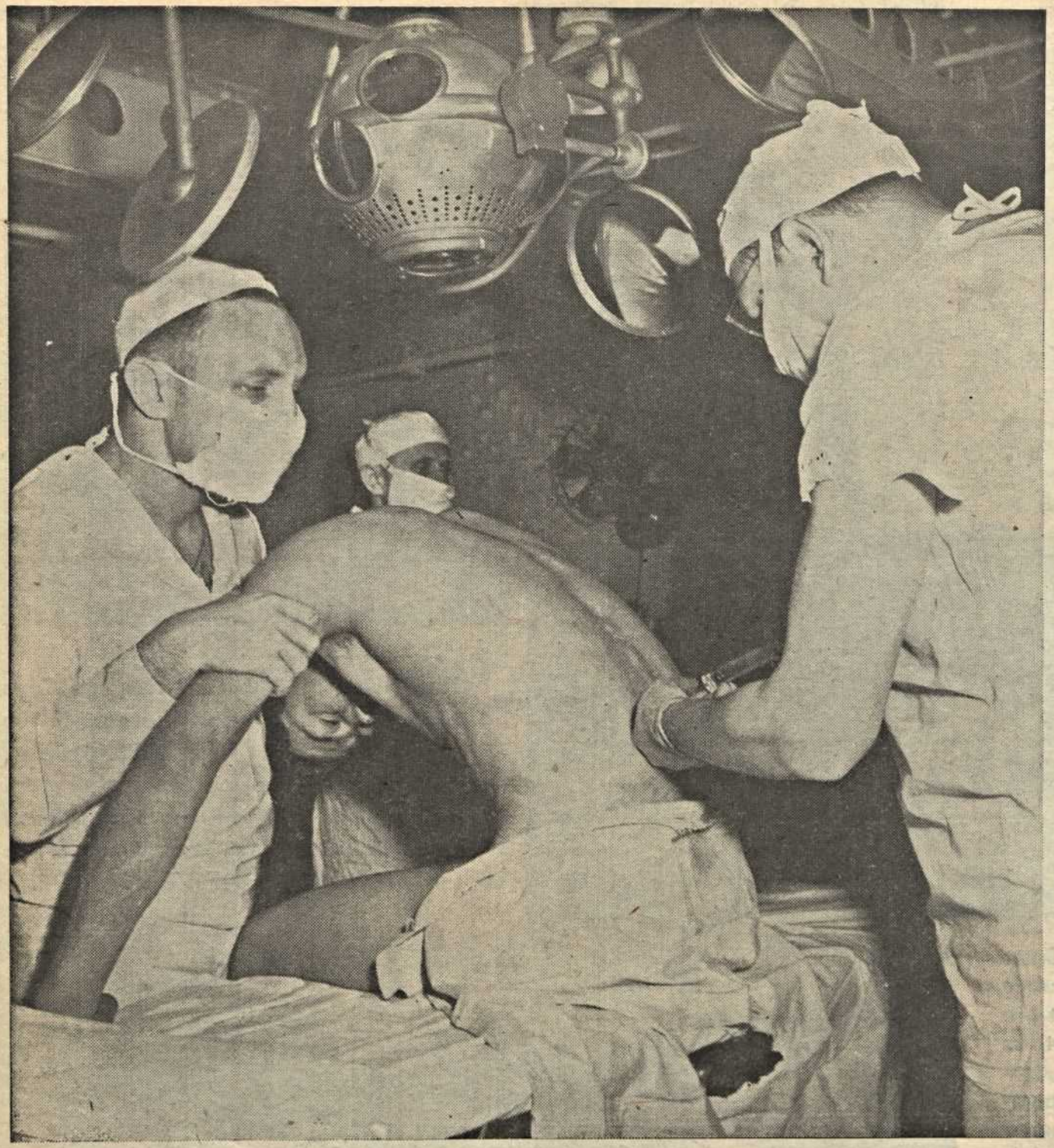
the plant, and switching by the Great Northern within the plant. Milwaukee cars moving in and out of the plant are handled by Great Northern locomotives and crews.

Chief of the Great Northern operation at Great Falls is M. H. Warren, agent and yardmaster; his general clerk is Ralph Dinke. Ernest Wilson and Earl Nader are checkers; Alex Ferguson is car foreman and William Margonis is section foreman. The two big pictures at the left on the opposite page show a load of concentrate and fume being pushed into the Zinc Plant, with a close-up of some of the fume in the cars. In the upper left picture you see one of the small locomotives bringing anodes from Anaconda and in the small picture at the upper right Mike Cupurdia and Gene Marianetti are unloading anodes outside the Copper Refinery. Below that's the No. 18 crew at the Sky Line Smelter—left to right we find Alex Ferguson, J. P. Keefe, Tim Sullivan, Floyd Dewey, Herb Mehlhoff and J. W. Boyle.









What Has Copper Got to Do With Appendicitis?

THIS is a little hard to look at. This sailor has developed appendicitis and he is on a battleship in wartime waters. He is being given a spinal anaesthetic so that this operation can be performed. What has that got to do with copper? Well, just this: if it weren't for copper in the medical equipment needed to perform this operation, this sailor would have died. It's as simple as that. Because aboard the warships of this country there are the finest medical departments possible. They may be a little cramped and the seas may roll, but time and time again, day in and day out, lives of fighting men are being saved. That's where copper plays a real part. As a miner you may have mined the ore that produced the copper that helped save this man's life; as a smelterman you may have been responsible for putting the copper into the medical equipment that enabled this youngster to walk and fight again; as a refiner you may have seen the copper shipped from your plant, sped on its way to do the humane job of saving lives as well as destroying them.

Don't kid yourself about the value of copper. It is the most important metal in the world today. It kills our enemies and preserves our families. It is a symbol of destruction for the Axis and a symbol of strength for us. We want to kill the soldiers of the enemy, but we certainly don't want to kill our own.